

**I. Claim Rejection 35 USC §103**

In rejecting the claims, Examiner states:

Felde discloses the invention substantially as claimed except for the cubic boron nitride (CBN) tip. It appears that the tip is PCD. Note c. 2, ll. 55-60. However, the Prior Art teaches that PCD and CBN are equivalent in the art. Application Specification, p. 3, ll. 17-25. Thus, it would have been obvious to the ordinary artisan at the time of the instant invention to substitute the CBN tip as taught by the Prior Art for the PCD of Felde, since both are deemed to be equivalent hard materials for the cutting tips in the sawing art, since they both work equally well, and a selection of one or the other would have been an obvious matter of design choice.

This rejection is respectfully traversed for the reasons described below.

1. Applicant has not stated that PCD and CBN are "equivalent in the art" as averred by Examiner.

Applicant respectfully disagrees with Examiner's assertion that Applicant's specification "teaches that PCD and CBN are equivalent in the art." (See p. 2 of final Office action.) Applicant has made no such admission, and statements in Applicant's specification actually point out important differences between PCD and CBN that Examiner has not considered.

First, regarding the statement cited by Examiner in the present Specification, p. 3, lines 17-25, Applicant quotes that passage:

In practice, thin layers of PCD or CBN are bonded to a disk of tungsten carbide substrate ranging from 60 to 100 mm in diameter. The process requirements are extreme, e.g., 1300 C and tens of thousands of atmospheres of pressure. These bonded disks, or wafers, generally have a combined thickness of around 3 to 4 mm with PCD or PCBN forming a single-sided layer .1 to .3 mm thick. The substrate face of tungsten carbide is ground flat and overall thickness is further reduced by grinding to one of several industry standard dimensions.

This passage is listed in the Background of the Invention, under the subheading, "Ultrahard Cutting Tool Materials". This background section begins to describe some of the materials used in the industry. However, contrary to Examiner's assertion, (i.e., that Applicant admits these two are "equivalent in the art," or that both substances are "deemed to be equivalent hard materials for the cutting tips in the sawing art, since they both work equally well..." (see final Office action pages 2-3)), the background from which Examiner quotes goes on to describe important differences between the PCD and CBN.

For example, and most importantly, page 4, lines 7-15 state:

PCD is primarily used in non-ferrous metalworking applications such as copper and aluminum or to machine plastics, rubber, synthetics, and laminates. It had also found widespread use in sawing and shaping medium-density fiberboard and chipboard in the furniture industry. Unfortunately, notwithstanding its superb properties, it reacts chemically with iron and steel and cannot be used to machine any steel alloy.

Polycrystalline Cubic Boron Nitride (PCBN) is used for machining ferrous materials such as gray cast iron.

[Emphasis added.]

These lines clearly describe differences between PCBN and PCD materials, differences specifically relevant to the present claims, as presented in the amendment filed 6-9-2004.

For example, claim 1 (as amended) reads:

1. A cutting tool for woodworking-type applications which involve occasional cutting exposure to ferrous materials, comprising:

a carrier body; and  
one or more cutting tips comprising boron nitride, and being attached to said carrier body;  
wherein said cutting tips, as attached to said carrier body, define positive respective hook angles of 5 degrees or greater.

The claim recites "applications which involve occasional cutting exposure to ferrous materials...." Hence, the present invention has made a specific choice of materials for a particular use, as claimed. This choice is relevant to the materials which Examiner equates, but which the present specification clearly distinguishes, as recited above.

Hence, it is respectfully submitted that Applicants have not made any statement that "PCD and CBN tips are equivalent in the art," nor that PCD and CBN "work equally well," as Examiner suggests. Hence, Examiner's statement that "it would have been obvious to the ordinary artisan at the time of the instant invention to substitute the CBN tip as taught in by the prior art for the PCD of Felde," is

incorrect, and inconsistent with the present specification and the limitations of the relevant materials.

Therefore, it is respectfully submitted that Examiner has failed to present a *prima facie* case of obviousness because the cited reference, Felde, fails to teach or suggest (or mention in any way) use of the cubic boron nitride material recited in claim 1. A *prima facie* case of obviousness is established when the teachings of the prior art itself suggest the claimed subject matter to a person of ordinary skill in the art. *In re Bell*, 991 F.2d 781, 783, 26 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1993). [Emphasis added.]

Because Applicant has not made the admission of prior art suggested by Examiner, because the Felde reference fails to teach or suggest any modification of the materials used, and because the material used by Felde is inconsistent with the claimed invention (PCD is not used on ferrous materials), it is respectfully submitted that Examiner has failed to make out a *prima facie* case of obviousness.

## 2. The Declaration filed May 25, 2004

Examiner responded to the declaration filed May 25, 2004 stating:

...it appears that the declaration merely include(s) statements which amount to an affirmation that the claimed subject matter functions as it was intended to function. This is not relevant to the issue of nonobviousness of the claimed subject matter and provides no objective evidence thereof.... In other words, while it is appreciated that Applicant's CRN topped saw blade works will in comparison to that of a PCB tipped saw blade, declarant's statements fails to address the issue why it would not be obvious to

substitute the CBN top of the Admitted Prior Art for the PCB tip of Felde.

Applicant respectfully submits that the declaration in question does in fact provide objective evidence that it would not be obvious to substitute the PCB of Felde for the CBN in the apparatus as claimed.

First, the declaration states in paragraph (3) that BZN (i.e., polycrystalline cubic boron nitride) has a higher cost than PCD. This would deter those of ordinary skill in the art from substituting cubic boron nitride for the PCD.

Second, the declaration also states that the cubic boron nitride can cut ferrous materials without incurring a chemical reaction--unlike PCD, which reacts with ferrous metals. Because PCD reacts with ferrous metals, it is unlikely one of ordinary skill in the art would equate PCD and cubic boron nitride in any application requiring the cutting of ferrous materials.

These statements in the declaration are indeed objective evidence that PCD and cubic boron nitride are not equivalent in the art. Because the reference cited by Examiner includes no teaching or suggestion to substitute one for the other, and because the declaration makes clear that the two materials are not equivalent to one another, it is respectfully submitted that the declaration is relevant to the issue of non-obviousness of the present claims, and suggests that the use of CBN in the context of the present claims would not be obvious to one of ordinary skill in the art at the time the invention was made.

Therefore, it is respectfully submitted that the present invention is distinguished from the cited reference.

3. Examiner has failed to make out a *prima facie* case of obviousness against at least claim 10.

For purposes of discussion, claim 10 is reproduced:

10. A method of fabricating a woodworking tool for occasional exposure to ferrous materials, comprising the actions of:

attaching one or more cutting tips, comprising cubic boron nitride, to a carrier body; and grinding said cutting tips using machinery, geometries and tooling suitable for grinding tungsten carbide cutting tips but with a slower feed rate.

In rejecting all claims in the present application (including claim 10), Examiner states:

Felde discloses the invention substantially as claimed for the cubic boron nitride (CBN) tip. It appears that the tip is PCD. Note c. 2, ll. 55-60. However, the Prior Art teaches that PCD and CBN are equivalent in the art. Application specification, p.3, ll. 17-25. Thus, it would have been obvious to the ordinary artisan at the time of the instant invention to substitute the CBN tip as taught by the Prior Art for the PCD of Felde, since both are deemed to be equivalent hard materials for the cutting tip in the sawing art, since they both work equally well, and a selection of one or the other would have been an obvious matter of design choice.

This passage, used to reject all claims, fails to mention several limitations of claim 10. For example, the step of, "grinding said cutting tips using machinery, geometries and tooling suitable for grinding tungsten carbide cutting tips but with a slower feed rate." Examiner has cited no specific passages in the reference that teach or suggest these claim limitations. One function of the *prima facie* burden is to require the Patent Office to set forth specific objections, which can be met by the applicant, and not just make general rejections. *In re Epstein*, 32 F.3d 1559, 31 U.S.P.Q.2d 1817, 1820 (Fed. Cir. 1994) (Plager, J., concurring). Only when a *prima facie* case of obviousness is established does the burden shift to the applicant to produce evidence of nonobviousness. *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992); *In re Rijckaert*, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993).

Further, the characterization of the reference by Examiner, even without citations, fails to aver that the limitations of claim 10 are found in the Felde reference. Because Examiner has not shown that all limitations of the claims are taught or suggested by the cited references, it is respectfully submitted that Examiner has failed to make out a *prima facie* case of obviousness against at least claim 10. Therefore, it is respectfully requested that claim 10 be allowed.

4. The Examiner has not made out a *prima facie* case of obviousness against at least dependent claim 2.

Dependent claim 2 states:

2. The tool of claim 1, wherein each said cutting tip is a layered combination of cubic boron nitride and tungsten carbide.

Examiner has not recited these elements as being present in the cited reference and has not shown any teaching that shows or suggests these limitations, in the context of the present claims. Therefore, it is respectfully submitted that no *prima facie* case of obviousness has been made against claim 2.

For the reasons cited above, Applicant respectfully requests favorable reconsideration of the claims.

II. Telephone Interview with Examiner on September 14, 2004

Examiner is thanked for agreeing to a telephone interview. Applicant discussed the present rejections in a telephone interview with Examiner on September 14, 2004. No agreement was reached. Applicant pointed out that the suggested admission of prior art was unsupportable based on the specification (which clearly describes important differences between the materials in question).



**III. Conclusion**

For the reasons recited above, Applicant respectfully submits that the claims of the present application are distinguished from the references cited by Examiner. The Examiner is requested to telephone the undersigned attorney for an interview to resolve any remaining issues.

Respectfully submitted,



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